

# TMS 860

## Product Guide



HYDRAULIC TRUCK CRANE

### Features

- MAX. CAPACITY - 60 Tonnes at 3m radius (85% Rating) 360° Slew
- BOOM - 5 Section formed boom 11.2m - 41.3m
- MAX. ROAD SPEED - 47 km/hr.
- CARRIER - 8x4 Drive

# Superstructure Specification

## BOOM

5-section, telescopic, formed, full power, sequenced-synchronized boom. Fabricated from high strength low alloy steel plates. Telescopic sections slide on adjustable and replaceable low friction wear resistance pads.

**Telescoping Range:** 11.2m - 41.3m.

**Maximum tip height:** 44.0m.

## BOOM NOSE

Five nylatron sheaves mounted on heavy duty tapered roller bearings with removable pin-type rope guards.

## BOOM ELEVATION

Single double acting hydraulic cylinder with integral holding valve.

## BOOM ANGLE

Maximum 78°, Minimum -1.8°.

## SUPERSTRUCTURE FRAME

Fabricated from high tensile steel plates and sections.

## SLEW SYSTEM

Ball bearing swing circle with 360° continuous rotation. Planetary glide swing with foot applied multi-disc wet brake. Spring applied hydraulically released parking brake. Mechanical house lock operated from cab. Free slew facility provided.

## SLEW SPEED

Maximum 2.0 RPM (Unladen).

## HOIST SYSTEM

Power up and down, equal speed, planetary reduction with integral automatic spring applied multidisc brake on grooved hoist barrel. Hoist drum fitted with third wrap indicator.

### Max. Single Line Pull:

1st Layer : 7955 kg, 2nd Layer : 7273 kg, 3rd Layer : 6705 kg, 4th Layer : 6218 kg, 5th Layer : 5800 kg.

### Max. Permissible Line Pull:

7250 kg with 18 x 19 class rope.

### Max. Single Line Speed:

113 m/min. (Unladen) - Top layer.

### Non Spin Hoist Rope:

Rope length 182m and 19mm (3/4") dia.

## HOOK BLOCK

60 MT, 5 sheaves.

## COUNTERWEIGHT

6000 kg. Pinned with superstructure.

## CRANE CONTROLS

Joystick controls are in operator's cab for slewing, telescoping, hoisting and derricking with independent or simultaneous operation of crane motions.

## HYDRAULIC SYSTEM

**Pump** - 3 sec. gear pump driven through gearbox PTO. Engine driven steering pump.

**Valves** - 3 nos. Over centre control valves with built-in pressure relief.

**Filter** - Return line type, full flow with bypass protection and service indicator. Replaceable cartridge.

**Reservoir** - 800 litres capacity fitted with filter, external sight gauge, clean out access, strap mounted to frame.

**Oil Cooler** - Remote mounted, thermostatically controlled electric motor driven fan.

## LOAD MOMENT INDICATOR & ANTI-TWO BLOCK SYSTEM

Electronic load moment indicator system with audio-visual warning & control lever lockout indicates electronic display of boom angle, length, radius, relative load moment, permissible load, load indication & warning of impending two block condition. Motion cut off to ensure the safe operation with load for tele, derrick & hoist motions.

## SAFETY SYSTEM

Pendant Limit Switch on boom head for over hoist. Third wrap indicator on hoist barrel to ensure 3 turns of rope on hoist drum.

Hydraulic relief valves protect pumps and structures from excessive pressure. Lock and counterbalance valves fitted on derrick, telescopic and outrigger cylinders to sustain rams in the event of hydraulic failure.

## OPERATOR'S CAB

Totally enclosed steel construction, full vision type, windows fitted with toughened safety glass including front windscreen. Adjustable operator's seat, cab interior light, electric fan, electric horn, electric windshield wiper and lockable sliding door. Ergonomically designed cab and controller layout to give fatigue free operator's comfort.

## OPTIONAL EQUIPMENT

10.1m Fixed Swing Away Extension

Auxiliary Hoist

Single Sheave Hook Block

Fire Extinguisher

Rotating Beacon Lamp

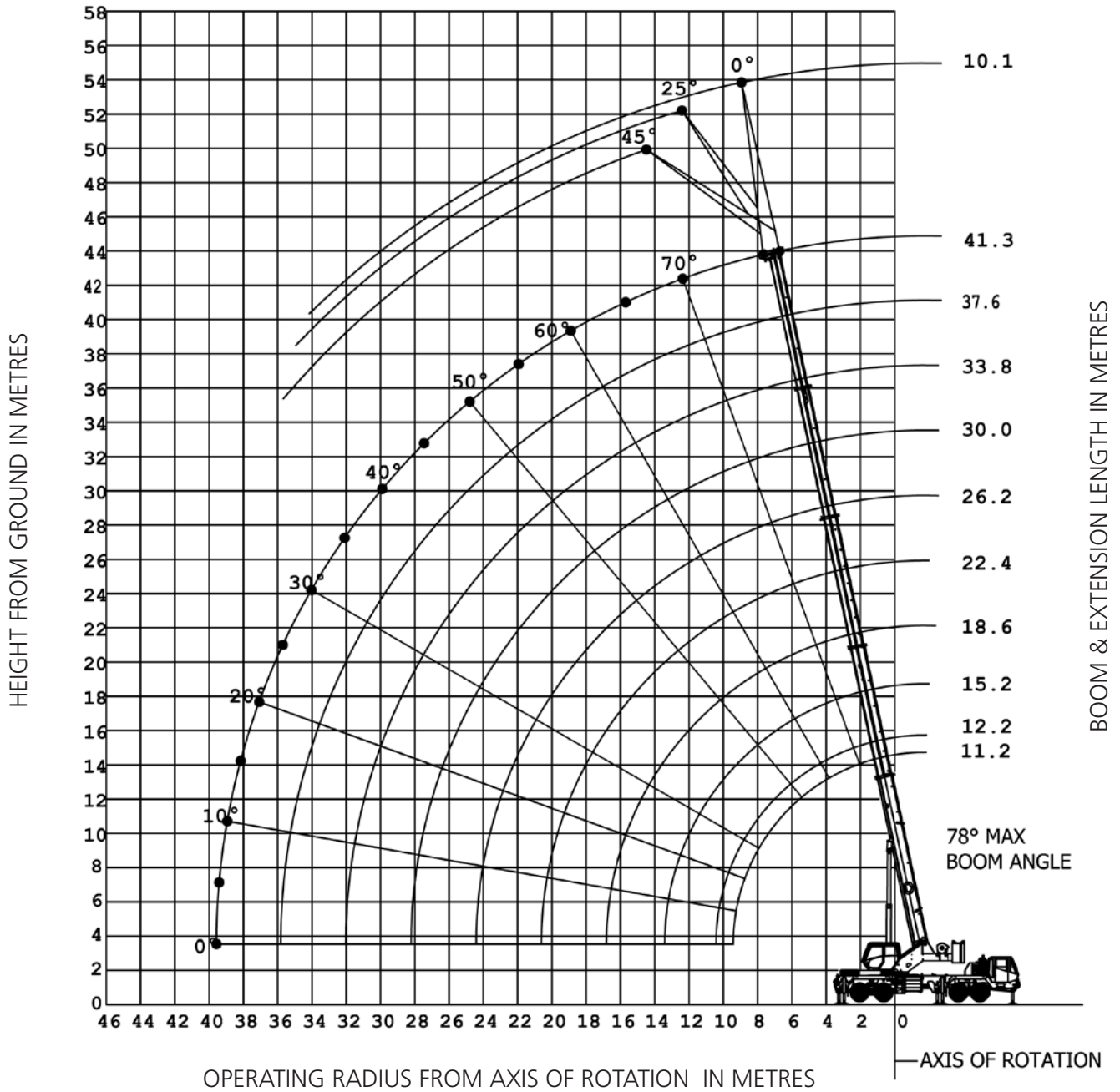
Spark Arrestor

Headache Ball

Air-conditioned cabin

# Height of Lift: 5 Section 11.2m - 41.3m Full Power Boom

WORKING RANGE DIAGRAM  
(BOOM DEFLECTION NOT SHOWN)



NOTE:  
The above heights of lift and boom angles are based on a straight (unladen) boom and allowance should be made for boom deflections obtained under laden conditions.

## Hookblock Capacities and Weights - Tonnes

No of Falls	10	9	8	7	6	5	4	3	2	1
Permissible Load	60	55.0	50.0	40.0	35.0	30.0	23.0	17.0	12.0	6.0
Weight of Hook Block	0.570	0.570	0.570	0.570	0.570	0.570	0.570	0.570	0.418	0.140

TMS 860

# Lifting Capacities (Metric) 85% Rating 5 Section Boom Duties (in Kilograms)

## Main Boom Duties on Outriggers Fully Extended – Full 360° Slew

Radius in Meters	Main Boom Length (in Meters)									
	11.2	12.2	15.2	18.6	22.4	26.2	30.0	33.8	37.6	41.3
3.0	60,000 (69.43)	36,375 (71.30)								
3.5	47,000 (66.56)	36,375 (68.73)	34,475 (73.16)							
4.0	42,875 (63.62)	36,075 (66.11)	34,475 (71.15)	26,175 (74.74)						
4.5	39,250 (60.58)	35,650 (63.42)	34,475 (69.10)	25,800 (73.11)	15,175 (76.08)					
5.0	36,225 (57.43)	33,350 (60.65)	32,450 (67.00)	24,450 (71.47)	15,175 (74.74)	12,550 (77.02)				
6.0	30,350 (50.68)	28,075 (54.81)	27,700 (62.73)	21,350 (68.13)	15,175 (72.04)	12,550 (74.74)	11,700 (76.73)			
7.0	26,000 (43.06)	24,200 (48.44)	23,900 (58.24)	18,675 (64.69)	14,425 (69.29)	12,275 (72.44)	11,125 (74.74)	9,375 (76.50)		
8.0	18,900 (33.84)	18,700 (41.23)	18,100 (53.49)	16,625 (61.14)	13,350 (66.48)	11,575 (70.10)	10,425 (72.73)	9,150 (74.74)	7,600 (76.33)	
9.0	13,650 (20.39)	14,650 (32.53)	14,100 (48.39)	13,700 (57.45)	11,850 (63.60)	10,175 (67.72)	9,575 (70.70)	8,550 (72.96)	7,200 (74.74)	6,000 (76.16)
10.0		11,750 (20.00)	11,200 (42.78)	10,900 (53.58)	10,625 (60.65)	9,175 (65.30)	8,850 (68.64)	7,965 (71.17)	6,800 (73.14)	5,800 (74.72)
12.0			7,500 (28.65)	7,100 (45.10)	7,750 (54.42)	7,775 (60.29)	7,275 (64.42)	6,975 (67.50)	6,000 (69.90)	5,200 (71.81)
14.0				4,700 (34.90)	5,300 (47.61)	5,750 (55.00)	6,000 (60.03)	6,235 (63.73)	5,200 (66.59)	5,000 (68.84)
16.0				3,000 (20.14)	3,650 (39.87)	4,000 (49.30)	4,400 (55.42)	4,600 (59.83)	4,800 (63.19)	4,800 (65.80)
18.0					2,400 (30.43)	2,850 (43.02)	3,150 (50.53)	3,400 (55.75)	3,500 (59.67)	3,600 (62.69)
20.0					1,500 (16.07)	1,900 (35.83)	2,200 (45.23)	2,400 (51.45)	2,600 (56.01)	2,700 (59.49)
22.0						1,150 (26.91)	1,450 (39.35)	1,700 (46.86)	1,850 (52.18)	2,000 (56.17)
24.0						500 (12.49)	850 (32.56)	1,000 (41.88)	1,240 (48.13)	1,400 (52.70)
26.0								500 (36.31)	750 (43.79)	850 (49.06)

Note: 1. ( ) Boom angles are in degree  
2. Minimum boom angle 0 degree for 41.3 meter boom length (no load) at over rear only.

**WARNING- Do not derrick- up from 0 degree boom angle if boom length is more than 33.8 meter.**

# Notes

## 10.1m Fixed Offsettable Boom Extension on Outriggers Fully Extended - 360° Slew

Radius (in Meters)	10.1m length		
	0° Offset	25° Offset	45° Offset
12.0	3,875		
14.0	3,875		
16.0	3,875	3,375	
18.0	3,780	3,260	2,965
20.0	3,450	3,005	2,840
22.0	2,820	2,780	2,690
24.0	2,190	2,160	2,060
26.0	1,670	1,640	1,540
28.0	1,230	1,200	1,100
30.0	750	750	700

### Weight Reduction for Load Handling Devices (approx.)

Auxiliary Boom Head	60 kg
<b>Hookblocks and Headache Ball</b>	
60 MT, 5 Sheaves	**570 kg
15 MT, 1 Sheave	**418 kg
6.8 MT, Headache Ball	**140 kg
<b>10.1m Boom Extension</b>	
Stowed (Boom Extension)	*470 kg
Erected (Boom Extension)	*2,195 kg

\*Reduction of main boom capacities

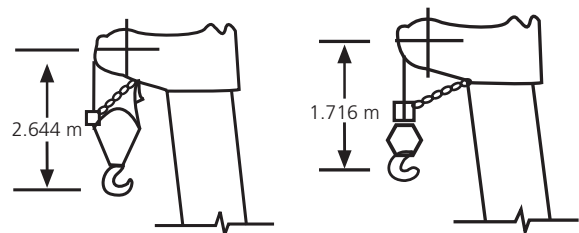
### Notes for Lifting Capacities

**WARNING: THIS CHART IS ONLY A GUIDE.** The Notes below are for illustration only and should not be relied upon to operate the crane. The individual crane's load chart, operating instructions and other instruction plates must be read and understood prior to operating the crane.

- All rated loads have been tested and meet minimum requirements of IS: 4573-1982 Specification for Power Driven Mobile Cranes, and do not exceed (85% of the tipping load on outriggers as well as on rubber) as determined by SAE J765OCT 80 Crane Stability Test Code.
- The weight of hook-block, slings and all similarly used load handling devices must be added to the weight of the load. When more than minimum required reeving is used the additional rope weight shall be considered part of the load.
- Capacities appearing above the bold line are based on structural strength and tipping should not be relied upon as a capacity limitation.

- All capacities are for crane on firm, level surface. It may be necessary to have structural supports under the outrigger floats or tyres to spread the load to a larger bearing surface.
- When either boom length or radius or both are between values listed, the smallest load shown at either the next larger radius or boom length shall be used.
- For outrigger operation, all outriggers shall be fully stretched & jacks extended to raise tyres free of the ground & the slew plinth becomes horizontal before raising the boom or lifting loads.
- The machine is equipped with front jack, the front jack cylinder shall be set along with the four outriggers.
- Tyres shall be inflated to the recommended pressure. Damaged tyres are hazardous for safe operation of crane.
- Lifting over-side on rubber is not permitted. Outrigger beams must be fully extended and stabilizers properly set when rotating superstructure over the side.
- Load ratings are based on freely suspended loads. No attempt shall be made to move a load horizontally on the ground in any direction.
- Handling of other equipment with the boom is not authorized except with equipment furnished and installed by TIL Ltd.
- WARNING 10.1m Fixed Offsettable Boom Extension:** For main boom length greater than 33.8m with 10.1m fixed boom extension in working position, the boom angle must not be less than 40°, since loss of stability will occur causing a tipping condition. The boom angle is not restricted for main boom length equal to or less than 33.8m. The warning also applies for boom extension erection purposes.

**WARNING: Outrigger beams must be fully extended and stabilizers properly set when rotating superstructure over side. Do not rotate superstructure while on rubber.**



Dimensions are for largest furnished hook block with anti-two block activated.

# Carrier Specification

## CARRIER

8x4 wheel, right hand drive, purpose built heavy duty carrier frame of torsion box section with integral front & rear outrigger housing fabricated from high strength steel plates and sections.

## OUTRIGGERS

Hydraulically operated outrigger system, comprising four independently controlled hydraulic telescopic horizontal beams with vertical jacks for over side & over rear operation. Plus one vertical hydraulic jack mounted under front of carrier to permit 360° lifting duties. Outrigger hydraulic jacks are fitted with positive lock valves. Easy fit outrigger feet are provided with stowage facility on carrier.

## OUTRIGGER CONTROLS

Located in the superstructure cab on front dash panel, requires two hand operation. Crane level indicator adjacent to controls.

## ENGINE

Ashok Leyland H6 Series,  
165 kW @ 2500 RPM,  
Max. Torque : 800 Nm @ 1700 - 1900 RPM,  
Emission : BS III CEV

## CLUTCH

Dry single plate hydraulically operated servo assisted.

## GEAR BOX

Synchromesh, 9 forward & 1 reverse speed obtained via a single lever control.

## DRIVE CONFIGURATION

8 x 4

## AXLES

Front Axle – 2 beam type non-drive steer axles, leaf spring mounted in tandem.

Rear Axle – 2 Heavy duty, fully floating type with hub reduction, twin axle. Air operated inter axle differential lock. Mounted on specially designed rocker beam to allow maximum articulation on uneven ground.

## STEERING

Front axles, mechanical with hydraulic power assist controlled by steering wheel from driver's cab.

## BRAKES

**Service** - Air operated on all wheels by means of foot operated pedal in driver's cab.

**Parking** - Flick-valve operated, spring actuated pneumatically released brake on trailing front axle and leading rear axle.

## FUEL TANK

Capacity – 300 litres.

## WHEELS & TYRES

Tyres 12.00 x 20-18PR single on front axles and twins on rear axles.

Spare wheel (one) provided for front axle.

## DRIVER'S CAB

Two man design, steel construction full width cab with electric fan, interior light, horn, operating windows fitted with toughened glass. Two lockable doors, electric windscreen wiper in front of windscreen. Upholstered and adjustable operator's seat. Automotive controls which include steering wheel, pedals for clutch, brake and accelerator.

## INSTRUMENTATION

Air pressure gauge, engine oil pressure gauge, fuel gauge, water temperature gauge, speedometer, voltmeter, tacho-hourmeter, warning lights and switches for control.

## ELECTRICAL EQUIPMENT

24-Volt starting and lighting system includes two combined dipping head lamps, side, rear and stop lamp, flashing direction indicator.

## TOOL BOX

Tool kit for normal maintenance.

## MAXIMUM SPEED

47 km/hr.

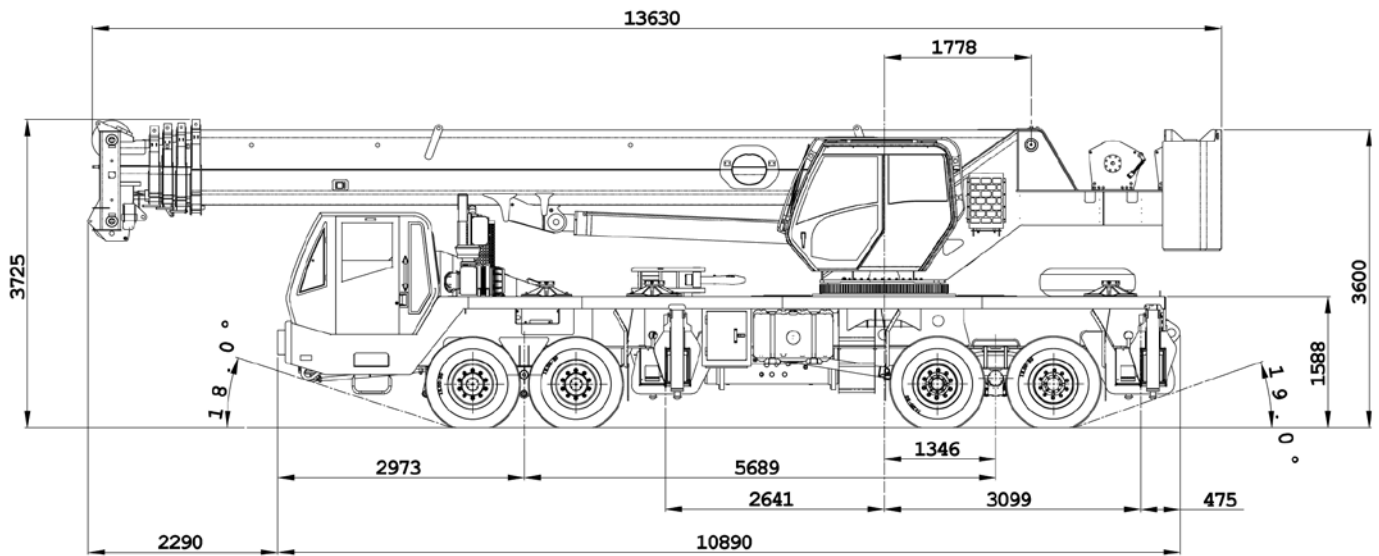
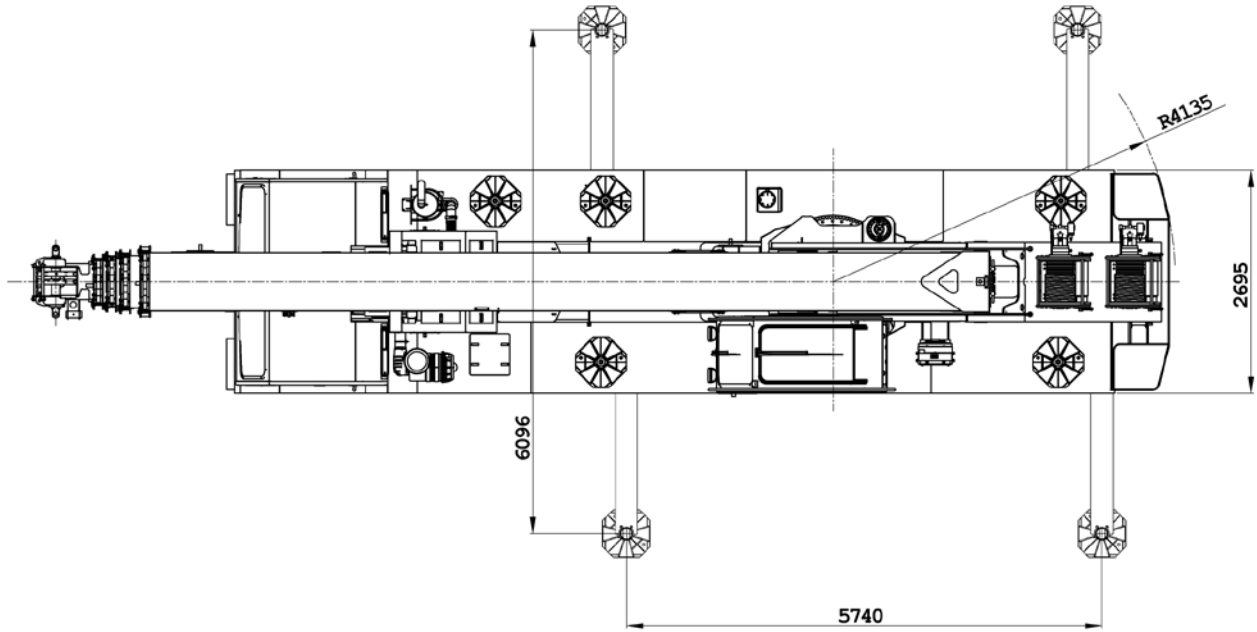
## GROSS VEHICLE WEIGHT AND AXLE LOADS (approx)

Front Axles	- 16,280 kg
Rear Axles	- 25,990 kg
GVW	- 42,270 kg

## Optional Weights (approx.)

Fixed Lattice : 1000 kg  
Auxiliary Hoist : 700 kg

# G.A Drawing



Dimensions in mm

Constant improvement and engineering progress make it necessary that we reserve the right to make specification, equipment and price changes without notice. The photographs/drawings in this document are just for illustrative purpose which may include optional equipment and accessories, which can be provided at an additional cost on request.

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